Scatter Plot with Random Distributions and Different Ball Sizes

Aim

To create a scatter plot using random distributions to generate balls of different sizes.

Algorithm

- 1. Import necessary libraries (matplotlib.pyplot and numpy).
- 2. Generate random data for x and y coordinates.
- 3. Generate random data for ball sizes.
- 4. Create a scatter plot using the generated data.
- 5. Set appropriate labels and title for the plot.
- 6. Display the plot.

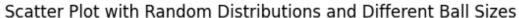
Code

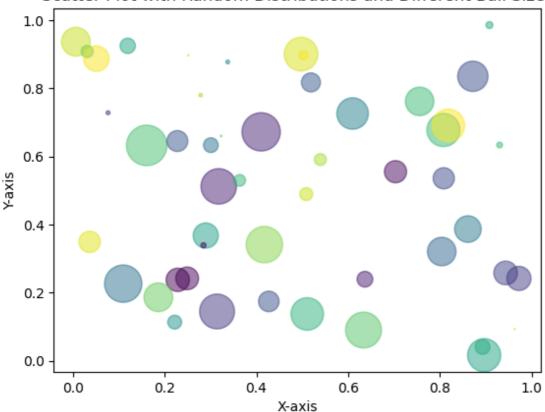
```
import matplotlib.pyplot as plt
import numpy as np

N = 50
x = np.random.rand(N)
y = np.random.rand(N)
colors = np.random.rand(N)
area = (30 * np.random.rand(N))**2

plt.scatter(x, y, s=area, c=colors, alpha=0.5)
plt.xlabel('X-axis')
plt.ylabel('Y-axis')
plt.title('Scatter Plot with Random Distributions and Different Ball Sizes')
plt.show()
```

Output





Result

The program successfully creates a scatter plot using random distributions to generate balls of different sizes. Each point on the plot represents a "ball" with its position determined by random x and y coordinates. The size of each ball varies based on randomly generated area values, and the colors are also randomly assigned. This visualization demonstrates how to create a scatter plot with varying point sizes and colors using matplotlib.